

Listing of Claims:

Claim 1 (currently amended): A method for providing authentication and accounting in a virtual private network having a first AAA server, the method comprising:

receiving a request from a remote user for connection with a virtual private network at a virtual home gateway, said virtual home gateway in communication with a second AAA server which is not located within said virtual private network ;

associating the remote user with the virtual private network, at the virtual home gateway, wherein associating the remote user comprises receiving a virtual private network ID and address of the first AAA server;

performing a lookup of the address of the first AAA server at the virtual home gateway;

sending a request to authenticate the remote user with said virtual private network from the virtual home gateway to the first AAA server located within said virtual private network; and

connecting the remote user to the virtual private network if the first AAA server authenticates the user; and

sending accounting information directly to the first and second AAA servers;

wherein authentication of the remote user is performed without contacting the second AAA server associated with the virtual home gateway.

Claim 2 (canceled).

Claim 3 (currently amended): The method of ~~claim 2~~ claim 1 wherein the virtual private network ID binds a profile of the virtual private network to a routing table of the virtual home gateway.

Claim 4 (currently amended): The method of claim 1 wherein the second AAA server is a service provider server and further comprising ~~wherein associating the remote user~~

~~comprises~~ sending a request to ~~a service provider~~ the second AAA server to authorize the remote user.

Claim 5 (currently amended): The method of claim 4 wherein the ~~service provider~~ second AAA server contains the address of the ~~virtual private network's~~ first AAA server.

Claim 6 (original): The method of claim 1 wherein sending a request to authenticate the remote user comprises routing the request using a customer routing table of the virtual private network.

Claim 7 (original): The method of claim 1 wherein connecting the remote user to the virtual private network comprises setting up a PPP session for the remote user.

Claim 8 (currently amended): The method of claim 1 further comprising sending an accounting request to the ~~virtual private network's~~ first AAA server.

Claim 9 (currently amended): The method of claim 8 further comprising sending an accounting request to the second ~~service provider's~~ AAA server.

Claim 10 (currently amended): The method of claim 9 wherein accounting information sent to the ~~virtual private network's~~ first AAA server is different than accounting information sent to the ~~service provider's~~ second AAA server.

Claim 11 (original): The method of claim 1 wherein associating a remote user with the virtual private network comprises identifying the virtual private network based on a domain name.

Claim 12 (original): The method of claim 1 wherein associating a remote user with the virtual private network comprises identifying the virtual private network based on a dial-up phone number.

Claim 13 (original): The method of claim 1 wherein associating a remote user with the virtual private network comprises identifying the virtual private network based on a circuit ID.

Claim 14 (currently amended): A computer-readable storage medium encoded with a computer program-product for providing authentication and accounting in a virtual private network having a first AAA server, the ~~product~~ computer program comprising:

code that receives a request from a remote user for connection with a virtual private network at a virtual home gateway, said virtual home gateway in communication with a second AAA server which is not located within said virtual private network;

code that associates the remote user with the virtual private network, at the virtual home gateway, wherein code that associates the remote user comprises code that receives a virtual private network ID and address of the first AAA server;

code that performs a lookup for an address of the first AAA server at the virtual home gateway;

code that sends a request to authenticate the remote user with said virtual private network from the virtual home gateway to the first AAA server located within said virtual private network;

code that connects the remote user to the virtual private network if the first AAA server authenticates the user;

code that sends accounting information directly to the first and second AAA servers;
and

a computer-readable storage medium for storing the codes;

wherein authentication of the remote user is preformed without contacting the second AAA server associated with the virtual home gateway.

Claim 15 (currently amended): The ~~product~~ computer-readable storage medium of claim 14 further comprising code that requests a service provider the second AAA server to authorize a remote user.

Claim 16 (currently amended): ~~The product~~ computer-readable storage medium of claim 14 further comprising code that sends accounting requests to the ~~virtual private network~~ first AAA server.

Claim 17 (currently amended): ~~The product~~ computer-readable storage medium of claim 14 further comprising code that binds a profile of the virtual private network to a routing table of the virtual home gateway.

Claim 18 (currently amended): A system for providing authentication in a virtual private network having a first AAA server, the system comprising:

a virtual home gateway configured to receive requests from a remote user for connection with one of a plurality of virtual private networks in communication with the virtual home gateway, associate the remote user with the virtual private network, perform a lookup of the address of the first AAA server, send a request to authenticate the remote user to the AAA server located within the virtual private network, and connect the remote user to the virtual private network, said virtual home gateway in communication with a second AAA server which is not located within said virtual private network;

a database for storing the address of the first virtual private network AAA server;
and

a processor operable to look up the address of the virtual private network AAA server based on information received from the remote user so that authentication is performed directly between the virtual home gateway and the virtual private network AAA server without contacting the second AAA server associated with the virtual home gateway;

wherein a virtual private network ID and address of the first AAA server is used to associate the remote user with the virtual private network, and wherein the virtual home gateway is configured to route the request to authenticate the remote user using a customer routing table of the virtual private network.

Claim 19 (original): The system of claim 18 wherein the information received from the remote user is a circuit ID.

Claim 20 (original): The system of claim 18 wherein the information received from the remote user is domain name.

Claim 21 (original): The system of claim 18 wherein the information received from the remote user is a dial-up phone number.

Claim 22 (currently amended): The system of claim 18 wherein the second further comprising a service provider AAA server is a service provider AAA service coupled to the virtual home gateway and configured to authorize the remote user.

Claim 23 (currently amended): The system of claim 18 wherein the database includes the virtual private network IDs used to bind virtual private network profiles to a routing table of the virtual home gateway.

Claim 24 (original): The system of claim 23 wherein the virtual home gateway comprises a plurality of routing tables corresponding to different virtual private networks.

Claim 25 (currently amended): A system for providing authentication and accounting in a virtual private network having an AAA server, the system comprising:

means for receiving a request from a remote user for connection with a virtual private network at a virtual home gateway, said virtual home gateway in communication with a second AAA server which is not located within said virtual private network;

means for associating the remote user with the virtual private network, at the virtual home gateway, wherein means for associating the remote user comprises means for receiving a virtual private network ID and address of the first AAA server;

means for performing a lookup for an address of the first AAA server at the virtual home gateway;

means for sending a request to authenticate the remote user with said virtual private network from the virtual home gateway to the first AAA server located within the virtual private network;

means for connecting the remote user to the virtual private network if the first AAA server authenticates the user; and

means for sending accounting information directly to the first and second AAA servers;

wherein authentication of said remote user is performed without contacting the AAA server associated with the virtual home gateway.

Claim 26 (canceled).

Claim 27 (currently amended): The system of claim 25 wherein the second AAA server is a service provider server and means for associating the remote user comprises means for sending a request to ~~a service provider~~ the second AAA server to authorize the remote user.

Claim 28 (currently amended): The system of claim 27 wherein the ~~second~~ service provider AAA server contains the address of the virtual private network's AAA server.